

WHAT IS CLAIMED IS:

1. An image detection processor, comprising:

a plurality of image detection processing elements; each said image detection processing element comprising:

a photodetector,

a converter for converting signals from said photodetector into digital signals, and

an adder which receives said digital signals as an input arranged on a plane;

a cumulative adder formed by connecting said adders of a plurality of said image detection processing elements in sequence;

a control circuit which selectively inputs said digital signals of a plurality of said image detection processing elements to said cumulative adder; and

an output port to which processed data outputted from said cumulative adder is supplied in response to image data detected by said photodetector.

2. An image detection processor, comprising:

a plurality of image detection processing elements; each said image detection processing element comprising:

a photodetector,

a converter for converting signals from said photodetector into digital signals, and

a first adder which receives said digital signals as an input arranged in a matrix form on a plane;

first cumulative adders formed by connecting said first adders of a plurality of said image detection processing elements in respective rows in sequence;

second adders corresponding to respective rows of said image detection processing elements and receiving outputs of final stages of said first cumulative adders of respective rows as inputs;

a second cumulative adder formed by connecting said second adders and cumulatively adding the outputs of said final stages of said first cumulative adders;

a control circuit which selectively inputs said digital signals of a plurality of said image detection processing elements to said first cumulative adders; and

an output port to which processed data outputted from said cumulative adders are supplied in response to image data detected by said photodetector.

3. An image detection processor according to claim 2, wherein said digital signals of said image detection processing elements are all inputted to said first cumulative adders by said control circuit and said processed data outputted from said second cumulative adder is set to the 0-order moment of focused images focused to a group of said image detection processing elements.

4. An image detection processor according to claim 2, wherein several digital signals selected from said digital signals of said image detection processing elements are inputted to said first cumulative adders by said control circuit and said processed data outputted from said second cumulative adder is set to a partial sum for obtaining an N-order moment of focused images focused to a group of said image detection processing elements, where N is an integer of at least one.

5. An image detection processor according to claim 2, wherein said converters are operated in accordance with first clock signals so as to generate said digital

signals and said first and second cumulative adders are operated in accordance with second clock signals different from said first clock signals, and said processed data is outputted from said second cumulative adders in order from the lower digit.

6. An image detection processor according to claim 1, wherein said digital signals outputted from a specific image detection processing element is generated based on an output from said photodetector of said specific image detection processing element and said digital signals from a plurality of image detection processing elements arranged close to said specific image detection processing element.

7. An image detection processor according to claim 1, wherein all elements are formed into one chip.

8. An image detection processor according to claim 2, wherein all elements are formed into one chip.

9. A method of detecting and processing an image comprising:  
a photoelectric conversion, by at least a photodetector of plural elements each having a photodetector arranged on a plane converting signals from said photodetectors into digital signals, and adding said digital signals from plural elements;

said step of adding further comprising:

forming a cumulative adder by connecting adders of a plurality of elements in sequence,

inputting selectively, said digital signals of a plurality of said elements to said cumulative adder, and

outputting the processed data from said cumulative adder.

10. A method of detecting and processing an image comprising:

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a photoelectric conversion, by at least a photodetector of plural elements each having a photodetector arranged in a matrix form on a plane, converting signals from said photodetectors into digital signals, and adding said digital signals from plural elements;

said step of adding further comprising:

forming first cumulative adders by connecting first adders of said plurality of elements in respective rows in sequence;

connecting second adders corresponding to respective rows of said elements and receiving the outputs of the final stages of said first cumulative adders of respective rows to form a second cumulative adder; and cumulatively adding the outputs of said final stages of said first cumulative adders; by said second cumulative adder;

inputting selectively, said digital signals of a plurality of said elements to said first cumulative adders, and outputting the processed data from said cumulative adders.

11. The method of claim 10 further comprising the steps of:

inputting said digital signals of said elements to said first cumulative adders by using a control circuit; and

setting said processed data outputted from said second cumulative adder to the 0-order moment of focused images focused to a group of said elements.

12. The method of claim 10 further comprising the steps of:

inputting several digital signals selected from said digital signals of said elements to said first cumulative adders using a control circuit, and

setting said processed data outputted from said second cumulative adder to a partial sum for obtaining an N-order moment of focused images focused to a group of said elements, where N is an integer of at least one.

13. The method of claim 10 further comprising the steps of:

generating said digital signals in accordance with first clock signals;

operating said first and second cumulative adders in accordance with second clock signals different from said first clock signals; and

outputting said processed data from said second cumulative adders in order from the lowest digit.

14. The method of claim 10 further comprising the step of:

generating said digital signals outputted from a specific element based on an output from said photodetector of said specific element and said digital signals from a plurality of elements arranged close to said specific element.